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# AGRICULTURAL LIBRARIES INFORMATION NOTES

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SURPLUS  
LIBRARY OF CONGRESS  
DUPLICATE

## ANSWERMAN, THE EXPERT INFORMATION SPECIALIST: AN EXPERT SYSTEM FOR RETRIEVAL OF INFORMATION FROM LIBRARY REFERENCE BOOKS

by  
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Associate Director  
National Agricultural Library

The NAL is exploring the development of "expert systems" that will help users obtain answers to questions on agricultural topics. Computerized expert systems mimic the advisory work done by human experts, in this case, reference librarians. However, no single librarian is capable of remembering the best sources for locating answers to all questions asked at a typical library reference desk.

Tools are needed to assist reference librarians in doing their work. These same tools could aid end-users themselves in locating either appropriate information sources, or the specific answers to their questions, without professional assistance. An expert system that serves as such a tool could free human librarians to handle complex queries requiring in-depth effort and relieve them of the more routine ready reference and directional questions. It could also be used to stem "brain drain" by acquiring and making available the special and local knowledge of reference librarians who are leaving the service of the library.

In developing expert or advisory systems, librarians should think big but start small. The ultimate goal should be to enable anyone and everyone to obtain ready access to the entire universe of knowledge. Our short-term objective at NAL is to create a microcomputer-based system which will guide an inquirer to a reference book likely to contain the answer to a question in a relatively narrow subfield of agriculture. Since expertise consists of knowing a lot about a narrow field, this seems like a reasonable way to begin on the long trail of expert system development that might lead to the grail of universal information service.

\*The author's article is adapted from one which appeared in Information Technology and Libraries, Vol. 5, No. 3, September 1986, the official publication of the Library and Information Technology Association (a division of the American Library Association).



NAL Day participants view demonstration of the Aquaculture expert system being developed by Library staff. The prototype system is the subject of this month's feature article.

## EXPERT SYSTEM SHELLS

Prerequisite to this development was locating an expert system shell that could be used by persons without expert systems experience. A shell is a software package that facilitates the creation of specific expert systems. To meet criteria for initial development and subsequent expansion, the shell would have to be relatively inexpensive and easy to use, but at the same time be quite powerful and capable of handling a large number of rules.

After surveying the literature and examining demonstration disks and documentation for a number of shells, a new one that exceeded our expectations was located. "1st-CLASS" is an example-based program that allows unsophisticated users to create systems using a framework much like a spreadsheet. It runs in IBM-PCs and clones which have at least 256K of RAM. This program can be obtained from Programs in Motion, 10 Sycamore Rd., Wayland, MA 01778.

"1st-CLASS" allows the system developer to use four screens. The Filing System screen shows which files have been built and can be accessed within the program. The Definitions screen allows the user to define the end results of the program, the factors that influence what the result would be, and the different possible values for each factor that would, in combination, determine the outcome. The Examples screen permits the developer to create combinations of values under different factors that will lead to different outcomes or answers. For each example, one may assign a number representing the degree of confidence one has that the response will provide an accurate answer.

Finally, the Solution screen has a menu of commands, one of which will create a rule to order the questions asked of a user so that the minimum number are required to arrive at a given result. The query command then generates screens for system users containing these questions, using any text added earlier with the Definitions screen. Beneath the question on the screen, which concerns one of the factors bearing the outcome, is a list of the values relating to that factor. From this list the user makes a choice. Then the next question is presented. This procedure is repeated until the expert system's answer is furnished.

## BUILDING A SYSTEM

Using these straightforward procedures, a small sample file of reference books was generated using as factors the type of information needed and the topic of the question. For example, if the type of information needed was statistical, and the topic was agriculture in general, a relevant reference book would be Agricultural Statistics. Unfortunately, the maximum capacity of a single file is 31 different results--not nearly enough even for a small ready reference collection in the field of agriculture.



However, "1st-CLASS" has techniques for expanding its capacity through chaining. Thus, it was possible to create a number of small programs, joined in a hierarchy, to guide a user through a series of questions to his answer.

A small demonstration system called Answerman was developed. The system leads a user to identify a subject field of interest by selection from a list of very broad fields in agriculture, proceeding down through several successively more specific levels to a discipline such as remote sensing. After clarifying the topic, the user defines the type of information needed, again choosing from menus served up by linked programs and is led to a response that lists one or more relevant ready reference titles with their call numbers. This automatic file linkage technique permits one to guide users to any of a very large number of reference books that might contain answers to their questions.

At this point, it was clear that, in principle, it would be simple to create an advisory system guiding users to an appropriate reference book. In fact, the Answerman advisory system could also point to appropriate online databases just by adding them to the list of reference information sources that might contain the answer to a given question. The beauty of the shell approach is that it allows librarians to create their own user-friendly system to select appropriate reference tools in any specialized field, easily and quickly.

#### LINKING TO EXTERNAL PROGRAMS AND SYSTEMS

The shell also enabled the demonstration system to encourage and collect feedback. Any system response can be linked to an external program if a simple procedure is used. A member of the NAL staff wrote a short program in BASIC which asked the user to type in what the specific question actually was, whether the answer was found in the reference book(s) recommended by the system, and what suggestions the user might have for improving the system.

After this feedback program was installed, the demonstration system was expanded to include a number of references to specific pages in books that contained the answers to questions, e.g., a particular table in a statistical handbook. To do this throughout even a small system, however, would have meant expanding the content of the system by several orders of magnitude. Fortunately, it was possible to use the external program capability in another way, to extend the reach of the system and even to alter its nature. Another staff member wrote script files for the Crosstalk telecommunications program, which automatically dialed up either the DIALOG or BRS online systems and logged on to a selected database. Certain expert system responses were then linked to database files such as NAL's AGRICOLA. When an individual needed citations in a given field of agriculture, the option of an automatic link to AGRICOLA was provided, as was the name and call number of an appropriate bibliography.

Finally, courtesy of the Microcomputer Center at the Federal Library and Information Center Committee, Answerman was linked to a CD-ROM (Compact Disk-Read Only Memory) containing a bibliographic file searchable by a DOS-based program. (Other CD-ROM disks containing the full-text of reference books are also available.) An expert system front end would still be needed to direct the information retrieval software to specific reference books in order to minimize the number of false drops likely to be retrieved from large numbers of reference books searchable at one time. Connected to a laser disk, an expert system could begin the process of answering a question by pointing to an appropriate reference book(s), automatically transfer the user to the information retrieval system used on the full-text disk, and display the actual text or table containing the answer to the question. With expert systems complementing friendly, menu-driven information retrieval systems and operating on large full-text files in mass memory devices, ready reference question-answering systems for specialized fields are almost here.

### NEXT STEPS

Where are we now? The coordinators of NAL's Aquaculture Information Center are moving ahead rapidly in developing an expert system in the field of aquaculture. The NAL will be seeking funding to generate a full text file of aquaculture reference books on a mass-storage device linkable to the expert system. In any case, the AGRICOLA database will soon be available on CD-ROM disks; the Aquatic Sciences and Fisheries Abstracts database already is. NAL plans to link both of these citation databases to the Aquaculture expert system. In any case, the Aquaculture expert system on a floppy disk alone could be made available at low cost to other institutions doing extensive reference work in this field. The Aquaculture system can then serve as a paradigm that other information centers at NAL and elsewhere could use.

As we work, we are seeing the development and commercialization of new shells. The discipline of artificial intelligence, of which expert systems is a part, has other fields in its armamentarium that are rapidly increasing the capabilities of inexpensive expert system shells. Among these are voice recognition by microcomputers and the important field of natural language studies. As the ability of a microcomputer to accept natural language input increases, the need for hierarchical menus and the "Twenty Questions" game will decrease.

We live in exciting times. The simultaneous development of artificial intelligence, mass memory, and systems for automatically converting hard copy to electronic form, provides librarians with an unparalleled opportunity to assist in making the world's factual knowledge readily accessible to all. We are at just the right point in the development curve of complementary technologies for librarians to make a significant contribution in their application.



## NAL DAY II DRAWS ENTHUSIASTIC AUDIENCE



Jerry Rafats, center, NAL coordinator for critical agricultural materials is interviewed during NAL Day for an upcoming episode of "Farm Day," seen on PBS stations nationwide. Despite the inclement weather, the greater-Washington agricultural/library community--over 200 strong--flocked to the all-day open house to observe first-hand the diversity of products and services available to meet information needs.



## NAL ANNOUNCES ALA MIDWINTER AGENDA

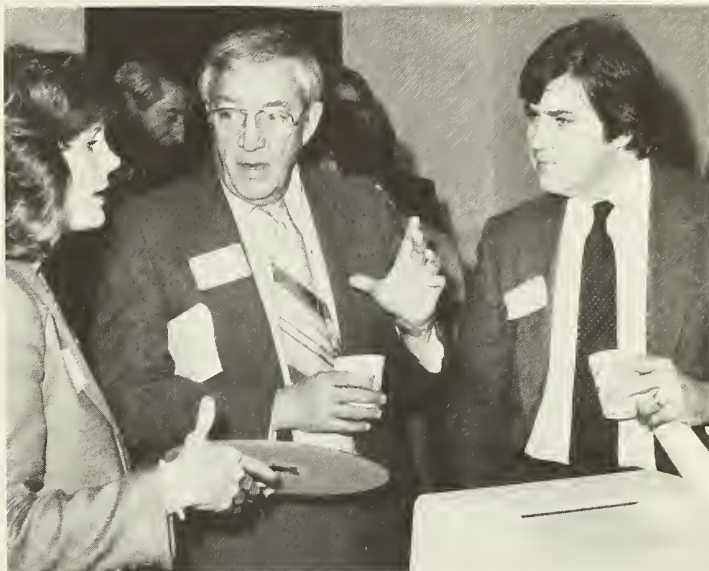
The NAL/Land-Grant Librarians meeting will be held Tuesday, January 20, at the Chicago Hilton and Towers, Joliet Room, from 2-4 p.m. Featured speakers will include Nancy Eaton, Director of Libraries, University of Vermont and Ron Reitdyk of Silverplatter, Inc.

Ms. Eaton's presentation will focus on the National Agricultural Text Digitizing project which she is coordinating under a cooperative agreement with NAL. Mr. Reitdyk will discuss upcoming plans for putting AGRICOLA on CD-ROM. A question and answer period will follow.



## 1986 "RESEARCH" YEARBOOK RELEASED

The 1986 Yearbook of Agriculture was unveiled in USDA headquarters ceremonies held November 10. Entitled "Research for Tomorrow" the 344-page hardback book features articles about research in biotechnology, acid rain, fire and conservation, human nutrition, and careers in agriculture beyond farming.



NAL staff helped launch 1986 Yearbook with laser disc and expert system demonstrations. Debbie Hanfman, above, responds to questions following presentation to the press. (USDA Photo)

NAL's role in support of agricultural research is documented in the chapter "Sharing New Knowledge." Two articles--"Information Centers: From Irradiation to Biotechnology and Beyond" and "New Technologies: Computerizing the Future"--were contributed by Education and Information (E&I) staffers Maria Pisa and Robert Butler, respectively. Each outlines the modern ways in which the Library is transferring scientific knowledge to its potential users. Gene Farkas, E&I Chief, was associate editor.

Copies of "Research for Tomorrow" are available for sale through the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 at \$9.50 per copy.

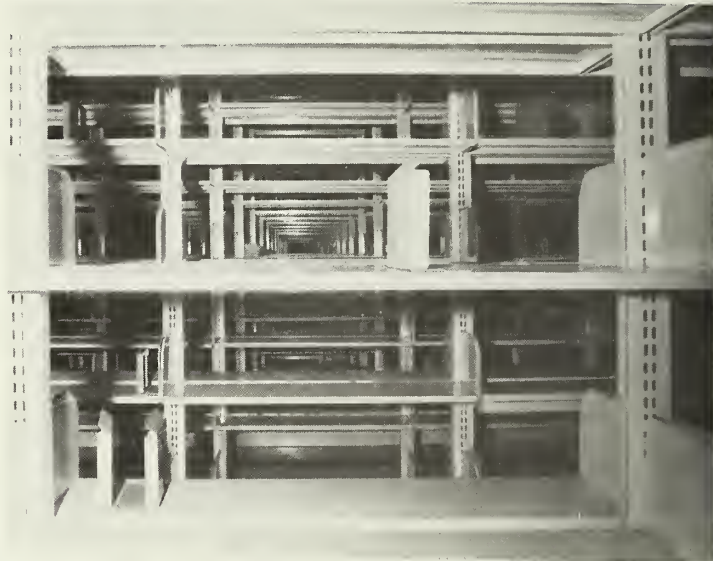


## NAL ON THE MOVE: A PHOTO ESSAY

When NAL decided to convert its DC Branch Library into a reference center (DCRC), preparations began to move the collection of 250,000 volumes to the main library in Beltsville. To make space, the remainder of the 1.8 million volumes was shifted and part of the 9th floor was converted to compact shelving. Shifting began October 1985, the compact shelving was installed in June 1986, the move from DCRC was completed in September, and the last box was unpacked November 25.



**National Agricultural Library**



**Open area of the stacks after shifting.**



**Moving Special Collections are Jesse Brown (top), Reference Branch and Wally Reeves, Lending Branch, NAL.**



**Staff of Office Movers, Inc. load truck at DCRC.**





Last truck arrives from DCRC.



Movers stack boxes for compact shelving.



Shelving (Louis Payne, top, and Craig McCoy, MACRO, Inc.).



Shifting (Allen Rice and Adrienne Jackson, Lending Branch, NAL).



Reading shelves (Isaac Sams, Lending Branch, NAL).



Opening the last box (Joe Swab, and Steven Adams and Gail King, MACRO, Inc.).

--Joseph N. Swab  
Public Services Division



# NAL EMPLOYEES RECOGNIZED AT AWARDS CEREMONY



NAL Award Recipients

The ninth annual NAL awards program held on November 13 honored a record-breaking number of employees for their outstanding accomplishments throughout the year. Former NAL director Dr. Foster E. Mohrhardt was the guest speaker. His commentary on the history of awards was both humorous and thought provoking. Dr. Mohrhardt's words of wisdom cheered the staff on, encouraged their efforts, and commended their achievements, both past and present.

In opening remarks, director Joe Howard reminded the staff of the impact that Dr. Mohrhardt's accomplishments have had on NAL and the library world. It was through Dr. Mohrhardt's efforts that the NAL building was constructed in Beltsville. His leadership secured NAL's designation as a national library and established NAL as a provider of information to the international agricultural community. Dr. Mohrhardt's 14-year tenure as director saw the creation of these and many other initiatives that resulted in worldwide recognition for NAL.

"The length of service awards presented today collectively total 410 years of dedicated Federal service," Mr. Howard said. In addition, 133 individual and group awards were presented.

The establishment of specialized information centers and the move of the DC Reference Center collection into the main collection at Beltsville were just two of the major tasks to which employees rallied making success possible. Another was the special effort of employees across divisional lines that contributed to the research and development of new technologies for library applications and programs. These are but a sampling of the dynamic efforts put forth by NAL employees.

Congratulations to all who received awards. Special thanks to Awards Committee members Shirley Edwards, Chair, Mary Ball, Helen Butler, Andreene Greene, Helen Kretsi, Melanie Larson, Jeff Maier, Jayne MacLean, Gary McCone, and Jim Krebs-Smith who worked diligently throughout the year to make this ceremony possible.

--Marilyn M. Jacobs  
Vice Chair, NAL Awards Committee



## LENGTH OF SERVICE AWARDS

10 Years: Alice Allen, Patricia Brewer, Nancy Chase, Susan Fugate, Albert Johnson, Diana Lemon, Charole Shore, Shirley Suprenant.

20 Years: Pamela Andre, Dreama Black, Betty Daniel, Mary Lassanyi, Veronica Lefebvre, Gloria Pugh, Anita Speight, Joseph Swab, Edward Warnick, Jr.

30 Years: Phyllis Bickerton, Donald North, Isaac Sams, Alfred Straughan Jr., and Ronald Young.


## SUGGESTION AWARDS

Veronica Lefebvre and Diana Lemon.

## PERFORMANCE AWARDS

Idalia Acosta, Alice Allen, Robert Anderson, Josephine Andy, Annetta Barnes, Charles Bebee, Donald Blamberg, Floy Boswell, Patricia Brewer, Jesse Brown, Louise Bruce, Helen Butler, Stephen Cheney, Michael Chisley, Ethel Claiborne, Marianne Davies, Lee Decker, Carol Ditzler, William Fedit, Edith Fifer, Jacqueline Foye, Nathaniel Frampton, Anita Frazier, Marie Funkhouser, Lena Garner, Elizabeth Goldberg, Deborah Hanfman, William Hauser, Christopher Highfill, Jennifer Hoerst, Martha Hood, Adrienne Jackson, Willie Jackson, Sherry Jager, Stanislaw Kosecki, Richard Kreiner, Susan Leatherman, Angela Lee, Veronica Lefebvre, Howard Lloyd, Jayne MacLean, Hollace Majkowski, Paul Malek, Roopa Mangalmurti, Frances Mark, Josephine McDowell, Robin Miller, Juanita Mobley, Charles Newson, Jesse Ostroff, Vicki Pessagno, Terrance Price, Gerald Reeves, Wallace Reeves, Allen Rice, Allan Rough, Elizabeth Sammons, Isaac Sams, Donna Scalise, Chris Schlesiger, Karl Schneider, Grace Sines, Rita Spencer, Daniel Starr, Joseph Stashick, John Stetka, June Sullivan, Joseph Swab, Pat Taylor, Tatiana Tontarski, Willie Twyman, Edward Warnick Jr., Samuel Waters, Ruth Wertman, James West, Patricia Wheeler, Susan Whitmore, Gloria Williams, Ronald Young.

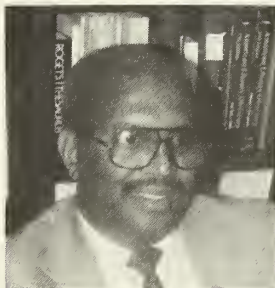
## CERTIFICATES OF APPRECIATION

Robert Anderson, Jean Bellows, Dreama Black, Evelyn Brownlee, Nancy Cecil, Diana Claburn, Lee Decker, John Forbes, Robyn Frank, Susan Fugate, Lena Garner, Win Gelenter, Henry Gilbert, Elizabeth Goldberg, Andreene Greene, Deborah Hanfman, Janet Harland, William Hauser, Kathleen Hayes, Christopher Highfill, Judith Ho, Jennifer Hoerst, Holly Irving, Adrienne Jackson, Helen Kretsi, Patricia Krug, Susan Leatherman, Thor Lehnert, Howard Lloyd, Jayne MacLean, Jeffrey Maier, Hollace Majkowski, Paul Malek, Roopa Mangalmurti, Pamela Mason, Vanessa Mason, Jane McLeod, Cheryl Moore, Bernadine Morris, Jesse Ostroff, Vicki Pessagno, Marilyn Putnam, Jerry Rafats, Nancy Raff, Karen Reed, Gerald Reeves, Janet Riley, Annette Rojas, Allan Rough, Elizabeth Sammons, Chris Schlesiger, Karl Schneider, Carole Shore, Joseph Stashick, John Stetka, Tanya Tanner, Pat Taylor, Rebecca Thompson, Patricia Wheeler, Susan Whitmore, Don Yeldell, Judith Zidar. 



## **STAFF UPDATE**

### **NAL BIDS FAREWELL TO...**



**Carl Younger**

On September 30, the last book was shelved and the last patron courteously served by Carl Younger, who retired after 35 years with NAL. Mr. Younger, a library technician at the D C Reference Center, said he "will now take it easy," spend lots of time with his young son, Gary, and pursue his interest in physical fitness activities. On September 26, over 50 friends, family, and co-workers attended a luncheon in honor of Mr. Younger's long and dedicated career with NAL.

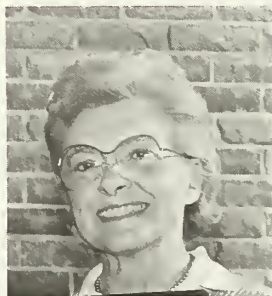




After 21 years of Federal service--16 of these with NAL--Betty Daniel, library technician with the Acquisitions Branch, has decided to retire. Mrs. Daniel has received recognition many times for her outstanding performance with the

Library, most recently in 1984. She has three children and seven grandchildren and now looks forward to spending more time with her family. Mrs. Daniel, who has lived in Adelphi for the past 30 years, is active in her church and is an avid bowler. "Occasionally I play a round or two of golf" she said, "just to keep from becoming a golf widow." Her first projects, however, are going to be devoting more attention to her flower garden and catching up on her favorite TV shows.

Marie Boone took time from her busy "life of leisure" on November 7 to return to NAL for a retirement reception in her honor. Over 70 friends, family, and co-workers gathered to welcome her



**Marie Boone**

back. Since 1982, she had served as Secretary to the Director. During 24 years of Federal service, her outstanding skills have been recognized with numerous awards. Most recently she was presented a cash award for her "continuous superior performance as secretary to the library director during a difficult period of change and new initiatives." Mrs. Boone just recently returned from a cross-country trip to California and will next travel to North Carolina to visit friends. "I had no idea that I would be so busy after I retired, but I'm enjoying every minute," she said.



## C.V. RILEY PERMANENT EXHIBIT DEDICATED

The Charles Valentine Riley permanent exhibit was dedicated in a special ceremony at NAL held on October 28.

Featured speakers included Victor J. Yannacone, Trustee, Cathryn Vedralia Riley Trust and Dr. Edward H. Smith, representing the C.V. Riley Memorial Foundation.

Riley, distinguished 19th century pioneer scientist and entomologist, is best known for his work as the first state entomologist in Missouri and as the USDA's chief entomologist from 1881 to 1894.



**Mrs. Brash with Riley portrait**

During dedication ceremonies, an oil portrait of the late C.V. Riley was placed in NAL's new Special Collections Reading Room by Emilie Wenban-Smith Brash, granddaughter of Riley. The portrait, along with Riley's desk, writings, and other memorabilia will form the Riley corner of the reading room.

Mrs. Brash, of Headly Down, England, last year presented the portrait to then Secretary of Agriculture John R. Block. It has been on display in the office of Orville G. Bentley, Assistant Secretary, Science and Education, since that time.

The dedication preceded the "National Agricultural Forum: The Health of the Land and Its People" sponsored by the Riley Foundation, the Riley Trust, and USDA, held in Washington, D.C.





## NEW PUBLICATIONS OF NOTE

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**\*\*BLACK FARMERS AND THEIR FARMS.** Washington, D.C., U.S. Department of Agriculture, Economic Research Service. July 1986. 36 p. (Report No. USDA/RDRR-59). \$9.95. PB86-217254/XAB.

**\*COMPOSITION OF FOODS: BEEF PRODUCTS...RAW, PROCESSED, PREPARED.** Washington, D.C., U.S. Department of Agriculture, Human Nutrition Information Service. 1986. (Agriculture Handbook No. 8). \$19.00. S/N 01-000-04482-6.

**\*\*COOPERATIVE FLAX TRIALS IN THE SPRING FLAX REGION - 1985.** Beltsville, MD, U.S. Department of Agriculture, Agricultural Research Service. June 1986. 17 p. \$9.95. PB86-219714/XAB.

**\*\*\*THE EFFECTIVENESS OF VIDEODISC TRAINING: A COMPREHENSIVE REVIEW.** January 1985. Michael DeBloois. Covers research and videodisc instruction (including conceptual reports and results of experimental studies) and the potential of interactive instruction. Includes contact information, research findings, and a complete bibliography of literature cited. 73 p. \$50.00.

**EGG SCIENCE AND TECHNOLOGY.** Third Edition. William J. Stadelman, ed. 1986. Covers production and handling of hard cooked eggs, grades of shell eggs, standards of identity for egg products, and data on the composition and utilization of eggs and egg products. 436 p. \$49.50. Stock No. 516. Order from AVI Publishing Co., Inc., 250 Post Road E., P.O. Box 831, Westport, CT 06881. Tel.: (203) 226-0738.

**\*\*FARM INCOME DATA: AN HISTORICAL PERSPECTIVE.** Washington, D.C., U.S. Department of Agriculture, Economic

Research Service. May 1986. 320 p. (Report USDA/SB-740). \$28.95. PB86-213451/XAB.

**\*\*JAPANESE GRAINS MODEL.** Washington, D.C., U.S. Department of Agriculture, Economic Research Service. June 1986. 348 p. (Report No. AGES-851003). \$28.95. PB86-218187/XAB.

**\*\*MANUAL OF THE AGROMYZIDAE (DIPTERA) OF THE UNITED STATES.** Beltsville, MD, U.S. Department of Agriculture, Agricultural Research Service. May 1986. 486 p. (Report No. Agriculture/HB-638). \$34.95. PB86-217189/XAB.

**\*\*MEXICO: AN EXPORT MARKET PROFILE.** Washington, D.C., U.S. Department of Agriculture, Economic Research Service. May 1986. 67 p. (Report No. FAER-220). \$11.95. PB86-214426/XAB.

**\*\*MODULAR ENERGY BALANCE PROGRAM INCLUDING SUBROUTINES FOR GREENHOUSES AND OTHER LATENT HEAT DEVICES.** Beltsville, MD, U.S. Department of Agriculture, Agricultural Research Service. May 1986. 362 p. (Report No. ARS-33). \$28.95. PB86-216108/XAB.

**\*\*PLANT INVENTORY NO. 193: PLANT MATERIAL INTRODUCED JANUARY 1 TO DECEMBER 31, 1985 (Nos. 494128 to 500148).** Beltsville, MD, U.S. Department of Agriculture, Agricultural Research Service. April 1986. 554 p. \$40.95. PB86-216116/XAB.

**\*\*PRICE RESPONSIVENESS OF WORLD GRAIN MARKETS: THE INFLUENCE OF GOVERNMENT INTERVENTION ON IMPORT PRICE ELASTICITY.** Washington, D.C., U.S. Department of Agriculture, Economic Research Service, June 1986. 33 p. (Report No. USDA/TB-1720). \$9.95. PB86-216694/XAB.

**\*\*SOUTH KOREA: AN EXPORT MARKET PROFILE.** Washington, D.C., U.S. Department of Agriculture, Economic Research Service. May 1986. 85 p. (Report No. USDA/FAER-216). \$11.95. PB86-215225/XAB.

**\*\*TAXATION AND AGRICULTURE: AN ANNOTATED BIBLIOGRAPHY OF SELECTED JOURNALS.** Washington, D.C., U.S. Department of Agriculture, Economic Research Service. August 1986. 64 p. (Report No. AGES-851107). \$11.95. PB86-235371/XAB.



**\*\*TRENDS IN DOUBLE CROPPING.**

Washington, D.C., U.S. Department of Agriculture, Economic Research Service. June 1986. 20 p. (Report No. AER-553). \$9.95. PB86-210697/XAB.

**\*\*U.S. DEMAND FOR FOOD: HOUSEHOLD**

**EXPENDITURES, DEMOGRAPHICS, AND PROJECTIONS.** Washington, D.C., U.S. Department of Agriculture, Economic Research Service. February 1986. 59 p. (Report No. USDA/TB-1713). \$11.95. PB86-183464/XAB.

**\*\*\*THE U.S. VIDEODISC MARKET: ANALYSIS AND FORECASTS TO 1990.** November 1985.

A review and forecast of the videodisc hardware and software market. Over 100 charts. Contact information for companies mentioned. 300 p. \$795.00.

**\*\*USSR GRAIN POLICIES AND DATA.**

Washington, D.C., U.S. Department of Agriculture, Economic Research Service. July 1986. 85 p. (Report No. AGES-860213). \$11.95. PB86-221744/XAB.

**\*\*\*VIDEODISC AND RELATED TECHNOLOGIES:**

**A GLOSSARY OF TERMS.** January 1986. Contains over 500 definitions of key terms from the videodisc, compact disc, optical memory, and computer fields. 80 p. \$7.95.

\*Order from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Tel.: (202) 783-3238.

\*\*Order from National Technical Information Service, Identification Section, 5285 Port Royal Road, Springfield, VA 22161. Tel.: (703) 487-4780. All titles listed are available in microfiche for \$5.95 each.

\*\*\*Order from Videodisc Monitor, P.O. Box 26, Falls Church, VA 22046-9990. Tel.: (703) 241-1799.



**GET INVOLVED IN SOMETHING SPECIAL**

The Special Libraries Association (SLA) is a network of people who can make a difference

in the quality of your professional life. Of particular interest to ALIN readers, is SLA's Food, Agriculture, and Nutrition (FAN) Division. This special interest group is comprised of over 250 librarians and information specialists representing all sectors of agriculture. A directory of its membership is updated annually.

The FAN provides a unique forum for dialogue and the sharing of expertise related to agricultural librarianship.

The 1987 SLA annual meeting will be held June 6-11 in Anaheim, California. The FAN Division will be sponsoring/cosponsoring special programs on: consumer food buying behavior, international databases, and biotechnology. A field trip to the Lawry Foods Center and a trip to a citrus grower and packer are being planned.

SLA membership makes you eligible to utilize the SLA Information Services Department, which serves as a clearinghouse for information on special libraries. It circulates books on library and information science, provides reference and referral services, and provides access to its collection of job descriptions, corporate organization charts, user survey questionnaires, collection development policies, user guides, promotional pieces, floor plans, budgets, and staff manuals to SLA members.

Join now and plan to attend next year's meeting in Anaheim. The membership fee is \$75.00. For further information contact Robyn Frank, FAN Division Membership Chairman, c/o Food and Nutrition Information Center, National Agricultural Library, Room 304, Beltsville, MD 20705, (301) 344-3719.







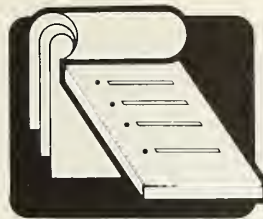
## NEW BIBLIOGRAPHIES

*Copies of the following bibliographies are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161. Telephone: (703) 487-4780.*

**Agricultural Labor in North America: Policies and Problems, 1979-85.**  
Compiled and edited by Charles N. Bebee, Beltsville, MD, U.S. Department of Agriculture, National Agricultural Library. (Bibliographies and Literature of Agriculture Series No. 50.) August 1986. 166 p. \$16.95 (paper) and \$5.95 (microfiche). PB87-107793/AS.

**Conservation Tillage: January 1980-August 1985, Citations from AGRICOLA Concerning Diseases and Other Environmental Considerations.**  
Compiled and edited by Charles N. Bebee, Beltsville, MD, U.S. Department of Agriculture and Washington, D.C., U.S. Environmental Protection Agency, Office of Pesticides Programs. (Bibliographies and Literature of Agriculture No. 51.) August 1986. 208 p. \$24.95 (paper) and \$6.50 (microfiche). PB87-113213/AS.

**The Protection of Hays: 1979-85, Citations from AGRICOLA Concerning Diseases and Other Environmental Considerations.** Compiled and edited by Charles N. Bebee, Beltsville, MD, U.S. Department of Agriculture, National Agricultural Library and Washington, D.C., U.S. Environmental Protection Agency, Office of Pesticides Programs. (Bibliographies and Literature of Agriculture No. 52.) August 1986. 154 p. \$16.95 (paper) and \$5.95 (microfiche). PB87-107801/AS.



## NEW SERIALS RECEIVED AT NAL

ANNUAL REVIEW OF CELL BIOLOGY. Palo Alto, CA, Annual Reviews, Inc. a. Vol. 1 (1985)-

OH573.A55

ARAB GULF JOURNAL OF SCIENTIFIC RESEARCH. Special Publication. Riyadh, Arab Bureau of Education for the Gulf States. 2/yr. No. 1 (May 1985)-

Q1.A66

AMERICAN JOURNAL OF ALTERNATIVE AGRICULTURE. Greenbelt, MD, Institute for Alternative Agriculture. q. Vol. 1, no. 1 (Winter 1986)-

S605.5.A43

ASHRAE HANDBOOK. Fundamentals (Inch-pound edition). Atlanta, GA, American Society of Heating, Refrigerating, and Air-Conditioning Engineers. Issued every 4 years. (1985)-

TH7201.A74

ASHRAE HANDBOOK. Fundamentals (System International edition). Atlanta, GA, American Society of Heating and Air-Conditioning Engineers. Issued every 4 years. (1985)-

TH7021.A742

LANDSCOPE. Perth, Australia, Dept. of Conservation and Land Management. irr. Vol. 1 (June 1985)-

S918.A8L37

PROGRESS IN HPLC (High Performance Liquid Chromatography). Utrecht, The Netherlands, VNU Science Press. irr. Vol. 1 (1985)-

QD79.C454P76

PROGRESS IN VETERINARY MICROBIOLOGY AND IMMUNOLOGY. New York, NY, Karger. irr. Vol. 1 (1985)-

SF600.P7



### AGRI-TOPICS AVAILABLE

Bulb culture is the subject of a new AGRI-TOPICS prepared by reference librarian Susan C. Whitmore. Included are lists of selected books, journals, and societies that deal with plants grown from bulbs. To request a copy send a self-addressed mailing label to Horticulture Information Center, Rm. 111, NAL, Beltsville, MD 20705.

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Send items to:

National Agricultural Library  
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Beltsville, MD 20705

Acta Tropica. V. 42, no. 2, 1985.

AgGRISTARS: Multi-channel Mars c/x-band Scatterometer System. (SR-KE-00318) V. 3, 1983.

Annales Bogorienses. V. 7, no. 4, 1979/81.

Biophysical Journal. V. 45, no. 3, March 1984.

Folia Microbiologica. V. 29, no. 4, 1984; V. 30, nos. 1-2, 1985.

USDA Agricultural Cooperative Service Research Report. No. 17, 1982.



### SURPLUS PUBLICATIONS

The following publications are surplus to the needs of the National Agricultural Library's collection. They will be made available to any interested organization that regularly sends free publications to NAL. Foreign institutions will need to provide a U.S. mailing address or make other special arrangements with U.S. sources for shipment of material. Listed titles can be requested up to 6 weeks following announcement.

To request publications send a return addressed label to National Agricultural Library, USDA, Attn: Gift and Exchange, Room 112, Beltsville, MD 20705, or call Susan Fugate, (301) 344-3732.

Pesticides Documentation Bulletin. V. 1, nos. 1, 6-21, 1965; V. 2, nos. 1-26, 1966; V. 3, nos. 1-26, 1967; V. 4, nos. 1-25, 1968.

Rhodora: Journal of the New England Botanical Club. V. 76, nos. 805-808, 1974; V. 77, nos. 809-812, 1975; V. 78, nos. 813-816, 1976; V. 79, nos. 817-820, 1977; V. 80, nos. 821-824, 1978; V. 81, nos. 825-828, 1979; V. 83, nos. 833-836, 1981; V. 84, nos. 837-840, 1982; V. 85, no. 841, 1983.

Taxon. V. 16, nos. 1-6, 1967 - V. 19, nos. 1-6, 1970; V. 20, nos. 1-4, 1971 - V. 25, nos. 1-4, 1976; V. 27, nos. 1-4, 1978; V. 29, nos. 1-4, 1980; V. 30, nos. 1-2, 1981.



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Chicago, IL, Chicago Hilton & Towers.  
Contact: ALA, 50 E. Huron St.,  
Chicago, IL 60611. Tel.: (312)  
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January 29-31: INTERNATIONAL POULTRY  
TRADE SHOW. Atlanta, GA, World  
Congress Center. Contact:  
Southeastern Poultry and Egg Assoc.,  
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February 3-5: WEED SCIENCE SOCIETY OF  
AMERICA MEETING. St. Louis, MO. USDA  
Speaker: Thomas O. Kay, FAS  
Administrator. Contact: WSSA, 309  
West Clark St., Champaign, IL 61820.  
Tel.: (217) 356-3182.

February 5-6: CHALLENGE FORUM ON  
BIOTECHNOLOGY. Washington, D.C. Sponsored  
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OGPA, Room 536-A, Washington, D.C. 20250.  
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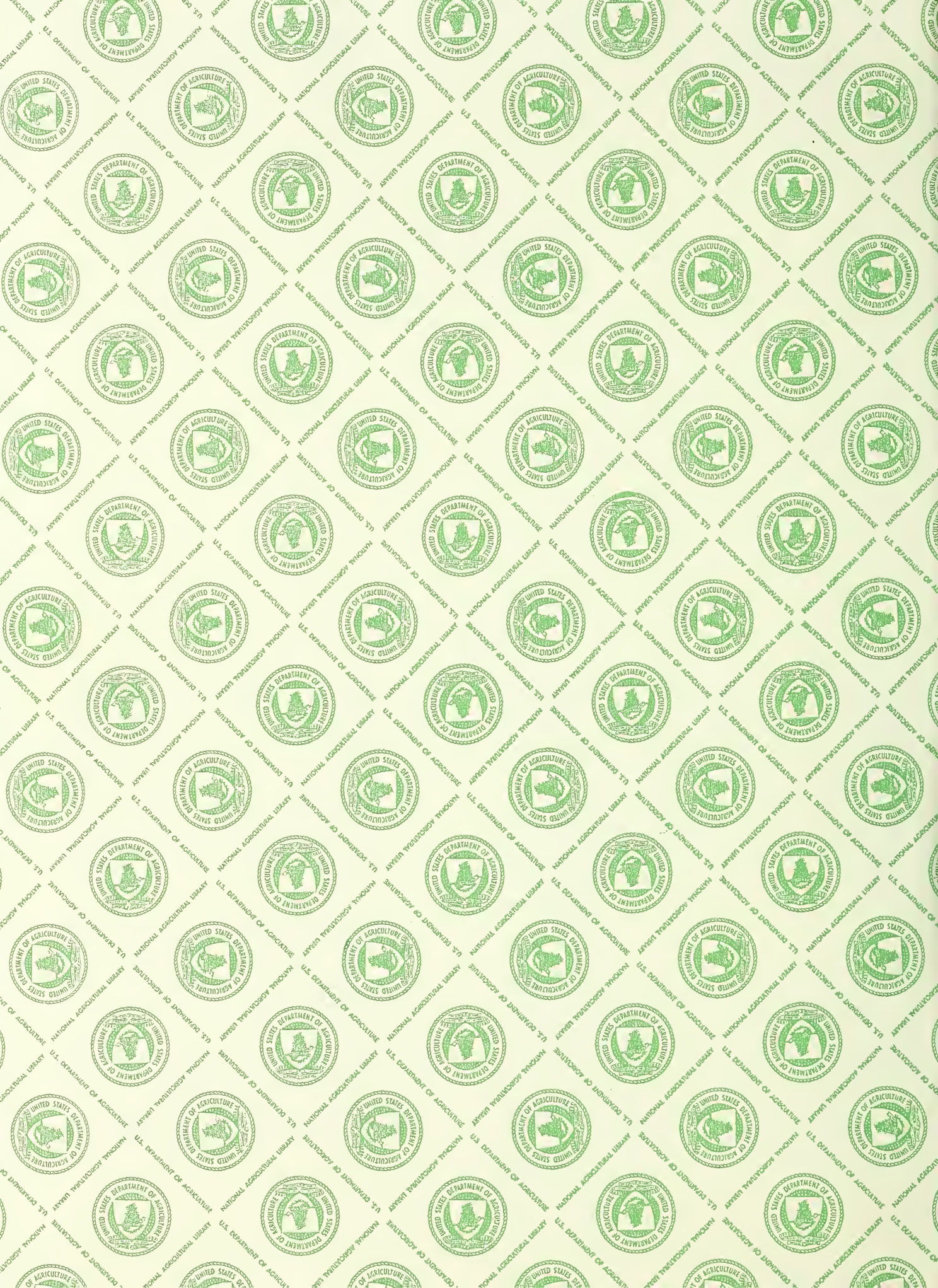
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Mission Palms. Contact: J. Tal Huber,  
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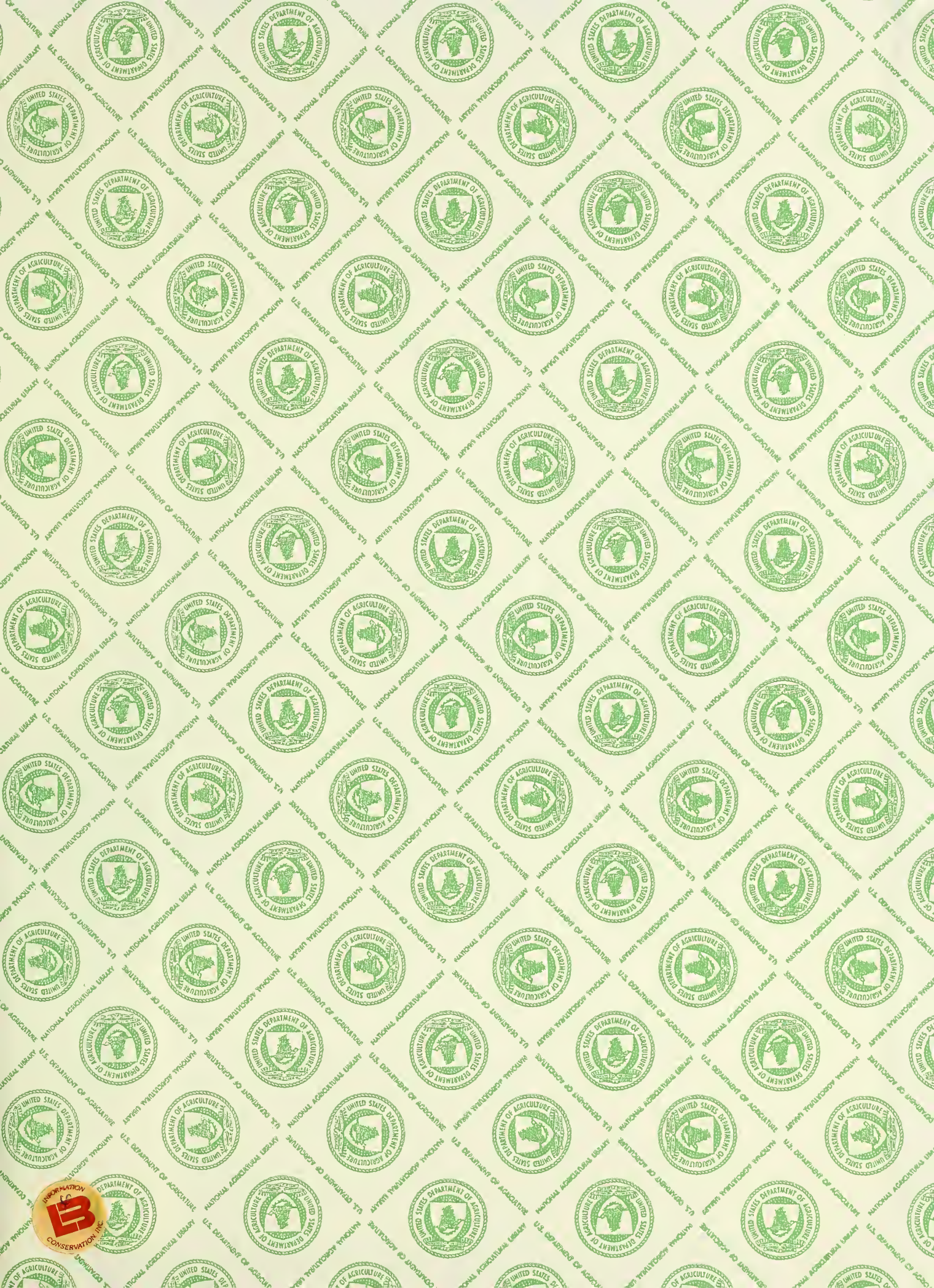
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